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REMARKS

Claims 1-26 are pending and under consideration.

In the Office Action mailed May 20, 2004, claims 1-8, 15, 16, and 20-26 are rejected under 35 USC §102(e) as being anticipated by Medin, Jr. (U.S. Patent No. 6,370,571).

Claims 9-14 and 17-19 are allowed.

In accordance with the foregoing, claim 5 has been amended.

Thus, claims 9-14 and 17-19 are allowed, and rejected claims 1-8, 15-16 and 20-26 are pending for reconsideration, which is respectfully requested.

No new matter is presented. The foregoing rejections are respectfully traversed.

Independent Claim 1

Medin discloses scalable processes for replicating, caching, and multicasting in a hierarchical, distributed network architecture.

The patentably distinguishing difference between the claimed present invention and Medin is "an integrated management mechanism ***integrating and controlling the storage area network***, said integrated management mechanism ***including access route information of the host computers and the storage devices.***" See, "integrated management mechanism" 1 in FIG. 1, and page 5, line 12 to page 9, line 4, of the present Application.

In contrast to Medin, the "integrated management mechanism" of the present invention contains "***access route information***" (or "access path information" in the FIG. 1 embodiment) indicating the access path between host computers and storage devices. Clearly, Medin does not disclose or suggest using information equivalent to the claimed present invention's "access route information."

Further, in contrast to Medin, the "integrated management mechanism" of the claimed present invention provides "***transmitting access management information to the storage devices and the storage area network management mechanisms of the host computers,***" which, clearly, Medin does not disclose or suggest that such "***access management information***" is transmitted to the storage devices or the host computers.

Further, in contrast to Medin, the "integrated management mechanism" of the claimed present invention provides "***transmitting region information to the region-setting mechanisms of the switches***" (or "zone setting mechanism" in the FIG. 1 embodiment).

Medin provides no disclosure or suggestion related to any information that is equivalent to the claimed present invention's "**region information**" transmitted to the "**region setting mechanisms of the switches**." Moreover, Medin does not disclose any element that is equivalent to the claimed present invention's "**region-setting mechanisms of the switches**." Although Medin discloses "regional server," the meaning of "regional/region" in Medin is different from that of the claimed present invention. In Medin, the term "regional sever" just means a server situated in a **geographical area**. However, the term "region" in the present invention has a meaning of **a region within the storage device**, and in contrast to Medin, in the claimed present invention, the "**region setting mechanisms of the switches**" **sets which region of the storage device to be accessed**.

It seems that the Examiner views in Medin, that a function of the software provided by Object System Integrators (column 8, lines 15-25 and column 10, lines 25-31, which is relied upon by the Examiner in rejecting the independent claims) is equivalent to the function of the "integrated management mechanism" of the present invention. However, there is no detailed disclosure related to the function of such software in Medin. Therefore, Medin cannot anticipatorily disclose or suggest the claimed functions/processes of the "integrated management mechanism" 1 of the present invention. See, also the arguments below regarding independent claims 4 and 20, as well as 5, 6, 7, 8, 15 and 16.

Independent Claims 7, 8

In contrast to Medin, the claimed present invention as recited in independent claims 7 and 8 are drawn to an apparatus of "integrated management mechanism" 1 performing the recited functions, as shown, for example, in FIG. 1 of the present Application. In other words, Medin does not disclose or suggest the claimed present invention's "integrated management mechanisms," as recited in independent claims 7 and 8, as follows:

- 1) "transmitting **access management information** to the **storage devices** and to the **storage area network management mechanisms of the host computers**,"
- 2) "transmitting **region information to a switch region-setting mechanism**," and
- 3) "transmitting **access restriction information** concerning the host computers to the storage management mechanisms of the storage devices."

Therefore, the claimed present invention as recited in independent claims 7 and 8 is patentably distinguishing over Medin.

Independent Claims 15, 16

The claimed present invention as recited in independent claims 15 and 16 is at least patentably distinguishing over Medin based upon the forgoing rationale regarding independent claims 1, 7 and 8. Further, in contrast to Medin, the claimed present invention as recited in independent claims 15 and 16, provides, "wherein **using said access path information**, the integrated management mechanism **transmitting access management information** to the storage devices and to the storage area network management mechanism, **transmitting region information** to switch region-setting mechanisms, and **transmitting access restriction information** concerning the host computers to the storage management mechanisms of the storage devices," and "**when the storage area network management system is started up and the access path information has not been set up, the integrated management mechanism first sets up the region-setting mechanisms of the switches so that no access is permitted and, after that, the integrated management mechanism sets up regions on the regions setting mechanisms of the switches.**"

Therefore, the claimed present invention as recited in independent claims 15 and 16 is patentably distinguishing over Medin.

Independent Claim 6

Medin does not disclose or suggest, that storage device access limit information or access restriction information, or any equivalent information concerning the host computer, shall be transmitted by an integrated management mechanism and processed by storage devices. In other words, in contrast to Medin, the claimed present invention as recited in independent claim 6, is drawn to "Storage devices in a storage area network system," that provide:

6. (ORIGINAL) Storage devices in a storage area network system including host computers and switches, and an integrated management mechanism integrating and managing the storage area network system, **each of said storage devices** comprising:

a storage management mechanism **establishing conditions of access restrictions for the storage device based on access restriction information transmitted by the integrated management mechanism**, said switches interconnecting the host computers and the storage devices.

For support in the specification, the claimed present invention's "access restriction/limit information," is related to information stored in the "host affinity table" shown in FIG. 5(d). In FIG. 5(d), the host computer for which WWN is stored as "Accessible HBA Information," is

permitted to access the "corresponding region," otherwise access to the storage device by the host computer is restricted. See, page 10, line 21 to page 13, line 10 of the present Application.

Clearly, Medin in column 6, lines 1-10, which is relied upon by the Examiner concerning Medin's regional computers 304 and disk array 306, does not disclose or suggest the claimed present invention's for "***each of said storage devices ... establishing conditions of access restrictions for the storage device based on access restriction information transmitted by the integrated management mechanism.***" Medin, in column 6, lines 1-10, only discloses that the regional computers 304 access the regional disk array 306, but does not disclose or suggest the claimed present invention's "***establishing conditions of access restrictions for the storage device based on access restriction information transmitted by the integrated management mechanism.***"

Therefore, clearly Medin does not disclose or suggest the claimed present invention as recited in independent claim 6.

Independent Claim 5

Medin does not disclose or suggest any element that is equivalent to the claimed present invention's "region-setting mechanism." Further, Medin does not disclose any element that transmits "region information" concerning a ***region within*** the storage device. In other words, in contrast to Medin, the claimed present invention as recited in independent claim 5 provides:

5. (CURRENTLY AMENDED) Switches in a storage area network system including storage devices, host computers, and an integrated management mechanism integrating and managing the storage area network system, each of said switches comprising:

a region-setting mechanism carrying out the ***region settings within the storage devices***, based on ***region information concerning regions within the storage devices transmitted by the integrated management mechanisms***, said switches interconnecting the storage devices and the host computers.

The independent claim 5 is amended to clarify that in contrast to Medin, in the claimed present invention the term "region" has a meaning of ***a region within the storage device***, and in contrast to Medin, the claimed present invention provides "***region settings within the storage devices***, based on ***region information concerning regions within the storage devices transmitted by the integrated management mechanisms.***" In Medin, the term

“regional sever” just means a server situated in a **geographical area**.

Therefore, clearly Medin does not disclose or suggest the claimed present invention as recited in independent claim 5, as amended.

Independent Claims 4 and 20

The Examiner in page 2, item 3 of the Office Action, rejects independent claim 20 for being anticipated under 35 USC 102(e) by Medin. The Examiner relies on Medin’s FIGS. 1, 3, and 5, and the network operations center (NOC) 126 and the regional data center (RDC 118). In particular, Medin in column 10, lines 7-15 and the 25-31 (which is relied upon by the Examiner in page 2, item 3 of the Office Action), discloses that the NOC 126 includes a central network management system (NMS) 820 that communicates with and coordinates the regional NMS agents 518 (520 as shown in FIG. 3) in the RDC 118. So the Examiner alleges that Medin’s NOC 126 would control the RAID 306 provided in the RDC 118 (see FIG. 3 of Medin), and therefore similar to the claimed present invention’s, “integrating and controlling the storage area network by an integrated management mechanism managing access relationships between host computers ... and storage devices.” However, Medin in column 10, lines 25-31 only provides that the NMS 820 of the NOC 126 “communicates with and coordinates the regional NMS agents 518” (520 as shown in FIG. 3), but Medin does not disclose or suggest any details of such communication or coordination. In other words, in contrast to Medin, the claimed present invention as recited in independent claim 20 provides “an integrated management mechanism **managing access relationships** between **host computers** ... and **storage devices**,” as follows:

20. (ORIGINAL) A method of a storage area network system, comprising:

integrating and controlling the storage area network by an integrated management mechanism **managing access relationships between host computers** of the storage area network **and storage devices** of the storage area network.

More particularly, there is no description in Medin (with reference to FIGS. 1 and 3) regarding the NOC 126 managing, as in the claimed present invention, “**access relationships**” between the regional computers 304 and the RAID 306. In other words, Medin in column 6, lines 1-10, with reference to FIG. 3, does not disclose or suggest any details of whether the two regional computers 304 of the RDC 118 provide the claimed present invention’s “**managing access relationships**” to the disk array 306, because Medin, in column 6, lines 1-10, only discloses that the regional computers 304 access the regional disk array 306, but not “**managing access relationships between host computers ... and storage devices.**”

Further, Medin in column 8, lines 15-25, which is relied upon by the Examiner, discloses “the regional NMS agent 520 monitors and proactively manages the part of the network under its regional data center (RDC) 118 and communicates the statuses of the regions to a central NMS station 820 in the network operations center (NOC) 126.” Therefore, Medin also only discloses network management by the NMS agent 520 of the RDC 118 without providing any details, and differs from the claimed present invention's, “an integrated management mechanism **managing access relationships** between **host computers** ... and **storage devices**.” Therefore, Medin cannot anticipate the claimed present invention, as recited in independent claim 20, because Medin does not disclose every patentably distinguishing features recited in independent claim 20. See, “integrated management mechanism” 1 in FIG. 1, and page 5, line 12 to page 9, line 4, of the present Application, where Medin does not disclose or suggest the claimed present invention's “integrated management mechanism” 1 that is “**managing access relationships**” between **hosts** 2 and **storage devices** 4.

Further, for example, in contrast to Medin, independent claim 4 is drawn to “Host computers in a storage area network,” in which “**each of said host computers** comprising: an integrated management mechanism integrating and managing the storage area network system, and **establishing access information for the storage devices based on access management information transmitted to the storage devices** from the integrated management mechanism.” See, FIG. 5(b) as the storage affinity table for a host. Medin in column 6, lines 1-10, with reference to FIG. 3, does not disclose or suggest any details of how the two regional computers 304 of the RDC 118 manage access to the disk array 306 or whether the two regional computer 304 perform any “**establishing access information for the storage devices based on access management information transmitted to the storage devices** from the integrated management mechanism,” with respect to the disk array 106. One example of the claimed present invention's “establishing access information for the storage devices **based on access management information transmitted to the storage devices**,” is “conditions of access restrictions” as recited in independent claim 6, as discussed above.

Therefore, the claimed present invention, as recited in independent claims 1, 4, 5, 6, 7, 8, 15, 16 and 20, clearly cannot be anticipated by Medin, because Medin does not disclose or suggest every patentably distinguishing feature of the present invention recited in the independent claims.

CONCLUSION


In view of the remarks, withdrawal of the rejection of pending claims and allowance of pending claims is respectfully requested.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

Respectfully submitted,
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